

As shown in this figure, the electroluminescent display panel **30** is composed of a pair of electrode sheets **1A** and **1B** arranged so that transparent conductive layers **4** and **4'** serving as electrode layers, contained in the electrode sheets **1A** and **1B**, respectively, can face each other; and an electroluminescent layer **31** whose both surfaces are covered with insulating layers (not shown in the figure), interposed between the electrode sheets **1A** and **1B**.

[0115] The electrode sheet **1A** arranged on the observational side has the same construction as that of the transparent conductive film **1** shown in **FIG. 2**, and contains a transparent hard coat layer **5**, a transparent plastic film **2**, a fine irregularity layer **3** and a transparent conductive layer **4** in the order stated, the transparent hard coat layer **5** being the top-most layer on the observational side. On the other hand, the electrode sheet **1B** arranged on the back side is composed of a transparent plastic film **2'** and a transparent conductive layer **4'** laminated thereto, the transparent conductive layer **4'** being on the upper, observational side.

[0116] The transparent conductive films that are used as the electrode sheets **1A** and **1B** are not limited to those ones shown in **FIG. 7**; and transparent conductive films having various structures as shown in **FIGS. 1A, 1B** and **2** can also be used. It is preferable that the transparent plastic film **2** in the electrode sheet **1A** arranged on the front side be as thin as possible to ensure good visibility, while it is preferable to use a thicker plate-shaped material as the transparent plastic film **2'** in the electrode sheet **1B** arranged on the back side in order to enhance the rigidity of the electroluminescent display panel **30**. In the case where the electroluminescent display panel **30** tends to be affected by water, oxygen, etc. contained in the air, it is preferable to air tightly cover the whole electroluminescent display panel **30** with a transparent, moisture resistant sheet.

EXAMPLES

[0117] (Example 1)

[0118] 200-mesh glass beads (particle diameter: approximately 130 μm) were blown over an iron-made roller by beads shot blasting to form fine irregularities on the surface of the roller. The roller provided with fine irregularities was then plated with chromium so that the thickness of the chromium layer would be 5 μm , thereby obtaining an embossing roller.

[0119] On the other hand, a 188- μm thick polyethylene terephthalate resin film was prepared as the transparent plastic film. A composition consisting of a polyurethane resin primer (manufactured by The Inctec Inc., Japan), and a 10:1:3.3 (weight ratio) mixture of a medium main agent for chemical mat varnish, a curing agent (XEL curing agent) and a solvent was applied to one surface of the transparent plastic film by gravure coating, and was then dried to form a 3- μm thick primer layer. The solvent used was a 1:1 solvent mixture of toluene and methyl ethyl ketone. It is noted that all blend ratios that appear in the descriptions of Examples 1 & 2 and Comparative Examples 1 & 2 are based on mass.

[0120] The embossing machine **10** shown in **FIG. 5** was used, where an ultraviolet-light-curing resin (trade mark "Unidic RC20-941", manufactured by Dainippon Ink & Chemical, Inc., Japan) was applied to the embossing roller,

and the polyethylene terephthalate resin film coated with the primer layer was laminated to the embossing roller with the primer layer faced the application side. Subsequently, ultraviolet light was applied from the film side by using an ultraviolet light source (D bulb manufactured by Fusion UV Systems, Inc.); and the polyethylene terephthalate resin film was then separated from the embossing roller, thereby obtaining a polyethylene terephthalate resin film to which a cured transparent resin layer made from the ultraviolet-light-curing resin, having fine irregularities on its surface, had been laminated.

[0121] Thereafter, by using a direct current magnetron sputtering apparatus and, as a target, sintered ITO, a 25- μm thick ITO thin film was deposited on the transparent resin layer provided with fine irregularities, under the following conditions: the film temperature=100° C., the degree of vacuum = 2×10^{-3} Torr, the making power=1 kW, and the deposition time=4 seconds. Thus, a transparent conductive film was finally obtained.

[0122] (Example 2)

[0123] The procedure of Example 1 was repeated to obtain a transparent conductive film, provided that a 100:75 (weight ratio) mixture of an ultraviolet-light-curing acrylic resin (trademark "PET-D31", manufactured by Dainichiseika Color & Chemicals Mfg. Co., Ltd., Japan) and a solvent was applied by roll coating (twin reverse rolls) to the surface of the polyethylene terephthalate resin film to which the transparent resin layer having fine irregularities and the ITO thin film had not been laminated, was dried, and was then cured by the application of ultraviolet light to form a hard coat layer having a mirror surface. The solvent used was a 3:1 mixture of toluene and methyl ethyl ketone.

[0124] (Comparative Example 1)

[0125] The procedure of Example 2 was repeated, provided that the lamination of the transparent resin layer having fine irregularities was omitted, thereby obtaining a transparent conductive film having a hard coat layer.

[0126] (Comparative Example 2)

[0127] The procedure of Example 2 was repeated, provided that the lamination of the transparent resin layer having fine irregularities was conducted by the use of the following mat coating composition under the processing conditions described below, thereby obtaining a transparent conductive film having a hard coat layer.

[0128] <Mat Coating Composition>

[0129] Ultraviolet-light-curing acrylic resin: 100 parts

[0130] Silica beads (mean particle diameter: 1.0 μm): 7.5 parts
Silicone oil: 0.1 parts

[0131] <Processing Conditions>

[0132] The above-described mat coating composition was applied to the surface of the polyethylene terephthalate resin film by gravure reverse roll coating so that the amount of the coating composition applied would be 1.5-2 g/m². This coating composition applied was then cured by the application of ultraviolet light (90 mJ \times 3 times) in an atmosphere of nitrogen, thereby laminating, to the polyethylene terephthalate resin film, the transparent resin layer having on its surface fine irregularities produced by the silica beads.